

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPELLANT'S MAIN BRIEF ON APPEAL

In re Patent Application of:)	
)	
Shintaro Okada)	Group Art Unit: 2624
)	
Application No. 10/553,085)	Examiner: Max Shikhman
)	
Filed: October 11, 2005)	Confirmation No.: 4769
)	
For: SIGNAL PROCESSING APPARATUS)	Attorney Docket No. 09792909-6376
AND METHOD, RECORDING MEDIUM)	
AND PROGRAM)	

Mail Stop Appeal Brief - Patents
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Appellant submits herewith Appellant's Main Brief on Appeal under 37 C.F.R. §41.37 in support of the Notice of Appeal filed on August 24, 2009. The Commissioner is hereby authorized to charge the amount of \$540.00 for the requisite filing fee for filing the Main Brief on Appeal to the Appellant's Attorneys' credit card. Credit Card payment for the fee is made via the electronic submission process.

The Commissioner is hereby authorized to charge any deficiency in fees associated with this communication or credit any overpayment to Deposit Account No. 19-3140.

Respectfully Submitted,

Dated: October 23, 2009

By: / Michael L. Day /
Michael L. Day
Registration No. 55,101
SONNENSCHN NATH & ROSENTHAL LLP
P.O. Box #061080
Wacker Drive Station - Sears Tower
Chicago, IL 60606-1080
Telephone 312/876-3442
Customer #26263
Attorneys for Appellants

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Alexandria, Virginia 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §41.37, Appellant submits this Main Brief on Appeal pursuant to the Notice of Appeal filed on August 24, 2009 in the above-identified application.

I. REAL PARTY IN INTEREST:

The real party in interest in the present appeal is the Assignee, Sony Corporation. The assignment was recorded in the U.S. Patent and Trademark Office at Reel 017886, Frame 0263.

II. RELATED APPEALS AND INTERFERENCES:

Appellant is not aware of any related appeals or interferences.

III. STATUS OF CLAIMS:

Claims 1-3 and 5 are pending in the application. A copy of claims 1-3 and 5 is appended hereto as the Claims Appendix.

The status of the claims on appeal is as follows:

Independent claims 1 and 5, and dependent claims 2 and 3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tsuchiya, US Pub no. 2001/0038716 (hereinafter, "*Tsuchiya*") in view of Nakajima, U.S. Pub no. 2004/0008902 (hereinafter, "*Nakajima*").

IV. STATUS OF AMENDMENTS:

There are no pending amendments. However, Appellant reserves the right to submit an amendment to correct noted typographical errors that do not affect the appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

Claims 1-3 and 5 are currently pending. Claims 1 and 5 are the only pending independent claims under consideration. Claims 2 and 3 depend from claim 1. Independent claims 1 and 5 are summarized below.

Claim 1:

A signal processing apparatus for adjusting levels of continuously arranged signals, said signal processing apparatus comprising:

a designation unit for designating the continuously arranged signals as a signal of attention one by one; (Fig. 7, 12, Fig. 8, S1, page 9, lines 8-10)

a determination unit for determining a predetermined number of signals preceding the signal of attention designated by the designation unit and a predetermined number of signals following the signal of attention, to be predetermined neighbouring signals; (Fig. 7, 12, Fig. 8, S2, page 9, lines 3-13)

a weight average unit for averaging by weight the signal of attention and the predetermined neighbouring signals; (Fig. 7, 13, Fig. 8, S5, page 10, lines 6-9)

flag setting unit for calculating a difference in levels between the signal of attention

and a neighbouring signal, judging whether or not the difference is larger than a predetermined threshold value, and raising flags for the neighbouring signal and another neighbouring signal, the two neighbouring signals arranged symmetrically with respect to the signal of attention, when the difference is judged to be larger than the predetermined threshold value; (Fig. 7, 12, Fig. 8, S3 and S4, page 9, line 17 to page 10, line 4) and

a control unit for controlling and causing the weighted average unit to average by weight the signal of attention and the predetermined neighbouring signals, using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised. (Fig. 7, 13, Fig. 8, S5, page 10, lines 6-11).

Claim 5:

A computer readable medium storing a program for adjusting levels of continuously arranged signals (page 13, lines 12-19), said program comprising:

a designation step of designating continuously arranged signals as a signal of attention one by one; (Fig. 8, S1, page 9, lines 8-10)

a determination step of determining a predetermined number of signals preceding the signal of attention designated by way of the designation step, and a predetermined number of signals following the signal of attention, to be predetermined neighbouring signals; (Fig. 8, S2, page 9, lines 3-13)

a weight average step of averaging by weight the signal of attention and the predetermined of neighbouring signals; (Fig. 8, S5, page 10, lines 6-9)

a flag setting step of calculating a difference in levels between the signal of attention and a neighbouring signal, judging whether or not the difference is larger than a predetermined threshold value, and raising flags for the neighbouring signal and a another neighbouring signal, the two neighbouring signals are arranged symmetrically with respect to the signal of attention, when the difference is judged to be larger than the predetermined threshold value; (Fig. 8, S3 and S4, page 9, line 17 to page 10, line 4) and

a control step of controlling and causing a process in the weighted average step to average by weight the signal of attention and the predetermined neighbouring signals, using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised. (Fig. 8, S5, page 10, lines 6-11)

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL:

The grounds of rejection to be reviewed on appeal are as follows:

A) Whether Claims 1-3 and 5 are unpatentable under 35 U.S.C. 103(a) over *Tsuchiya* in view of *Nakajima*.

VII. ARGUMENT:

As set forth below, claims 1-3 and 5 are not unpatentable under 35 U.S.C. §103(a) over *Tsuchiya* in view of *Nakajima*. Appellant respectfully submits that the Examiner's assertions are incorrect as a matter of fact and law. Thus, for the reasons set forth below, Appellant respectfully requests that the Board reverse the rejections of claims 1-3 and 5 under 35 U.S.C. §103(a).

With respect to independent claims 1 and 5, Appellant claims embodiments having the following features:

calculating a difference in levels between a signal of attention and a neighbouring signal, and raising flags for the neighbouring signal and another neighbouring signal, the two neighbouring signals arranged symmetrically with respect to the signal of attention, when a difference in levels between a signal of attention and the neighboring signal is judged to be larger than the predetermined threshold value; and using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised.

Tsuchiya discloses techniques for image processing to improve the contrast and the sharpness of an image. According to *Tsuchiya*, a nonlinear smoothing filter smoothes image data while conserving the edges of the image data, and then sends the resulting smoothed image data to an ε -filter. The ε -filter compares the absolute value of a difference between a pixel value x_n of a central pixel p_n and the pixel value x_{n-k} of a pixel p_{n-k} with a threshold value ε . When the absolute value of the difference is smaller than the threshold, the ε -filter uniformly smoothes the image treating the central pixel P_n as the center. When the absolute value of the difference is larger than the threshold value, however, the ε -filter performs smoothing with only pixel values of the vicinity of the pixel value x_n , ignoring the pixel value x_{n-k} . *Tsuchiya*, paragraphs 32-34.

Tsuchiya fails to teach or suggest calculating a difference in levels between a signal of attention and a neighbouring signal, ***and raising flags for the neighbouring signal and another neighbouring signal, the two neighbouring signals arranged symmetrically with respect to the signal of attention***, when a difference in levels between a signal of attention and the neighboring signal is judged to be larger than the predetermined threshold value; and using the level of the signal of attention instead of the level of ***each*** of the neighbouring signals for which flags are raised.

The Final Office Action, at page 6, admitted that *Tsuchiya* fails to teach or suggest “and another neighboring signal, the two neighboring signals arranged symmetrically” and relied on *Nakajima* for disclosing this feature.

Assuming, arguendo, that *Nakajima* may be properly combined with *Tsuchiya*, the combination still fails to render obvious the present invention, for at least the following reasons.

Nakajima relates to image noise reduction techniques to be used to digitize and process an image signal. Level values of peripheral pixels and the level value of a watched pixel are input into eight comparators and the value "1" is output when absolute values of differences between the level values are smaller than the value of a reference level. The value "0" is output when absolute values of differences between the level values are greater than the value of the reference level. For two pixels symmetric about a watched pixel (signal of attention), if the difference for either subtraction calculation is greater than theta (threshold value), “0” is output from the comparator and both pixels are invalidated. *Nakajima*, paragraph 0033.

The combination of *Tsuchiya* and *Nakajima* also fails to teach or suggest calculating a difference in levels between a signal of attention and a neighbouring signal, ***and raising flags for the neighbouring signal and another neighbouring signal, the two neighbouring signals arranged symmetrically with respect to the signal of attention***, when a difference in levels between a signal of attention and the neighboring signal is judged to be larger than the predetermined threshold value; and ***using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised***.

As shown above, *Nakajima*, if anything, teaches away from the foregoing feature because, rather than “using the level of the signal of attention instead of the level of each of

two neighbouring signals for which flags are raised”, *Nakajima* simply invalidates (zeros out) certain pixel signals. The Office Action asserted that *Nakajima* discloses neighboring signals arranged symmetrically. Whether or not this is true “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” MPEP 2141.02 VI, emphasis in original, citing W. L. Gore & Associates, Inc., v. Garlock, Inc., 721 F. 2d 1540 (Fed. Cir. 1983), cert. denied 469 U.S. 851 (1984).

Because the aforementioned feature is not taught or suggested by the cited prior art, the Office Action fails to establish that the invention as a whole is obvious in light thereof. See MPEP 2143.03. “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F. 2d 1382, 1385 (CCPA 1970).

Accordingly, Appellants respectfully request that the Board reverse the rejections of claims 1 and 5.

Claims 2 and 3 depend from claim 1. Because dependent claims incorporate all the limitations of the claims from which they depend, claims 2 and 3 are patentable over The combination of *Tsuchiya* and *Nakajima* for at least the reasons identified above.

Accordingly, Appellants respectfully request that the Board reverse the rejections of claims 2 and 3.

VIII. CONCLUSION:

For the foregoing reasons, Appellant respectfully submits that the rejections posed by the Examiner are improper as a matter of law and fact. Accordingly, Appellants respectfully request that the Board reverse the rejections of claims 1-3 and 5.

Respectfully Submitted,

Dated: October 23, 2009

By: / Michael L. Day /

Michael L. Day

Registration No. 55,101

SONNENSCHN NATH & ROSENTHAL LLP

P.O. Box #061080

Wacker Drive Station - Sears Tower

Chicago, IL 60606-1080

Telephone 312/876-3442

Customer #26263

Attorneys for Appellant

CLAIMS APPENDIX

1. (previously presented) A signal processing apparatus for adjusting levels of continuously arranged signals, said signal processing apparatus comprising:

a designation unit for designating the continuously arranged signals as a signal of attention one by one;

a determination unit for determining a predetermined number of signals preceding the signal of attention designated by the designation unit and a predetermined number of signals following the signal of attention, to be predetermined neighbouring signals;

a weight average unit for averaging by weight the signal of attention and the predetermined neighbouring signals;

flag setting unit for calculating a difference in levels between the signal of attention and a neighbouring signal, judging whether or not the difference is larger than a predetermined threshold value, and raising flags for the neighbouring signal and another neighbouring signal, the two neighbouring signals arranged symmetrically with respect to the signal of attention, when the difference is judged to be larger than the predetermined threshold value; and

a control unit for controlling and causing the weighted average unit to average by weight the signal of attention and the predetermined neighbouring signals, using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised.

2. (previously presented) The signal processing apparatus as described in claim 1, wherein said flag setting unit further raises a flag for a neighboring pixel away, in view of the pixel of attention, from the two neighboring pixels raised with flags.

3. (previously presented) The signal processing apparatus as described in claim 1, wherein said signals are pixel values of pixels constituting an image.

4. (canceled)

5. (previously presented) A computer readable medium storing a program for adjusting levels of continuously arranged signals, said program comprising:

a designation step of designating continuously arranged signals as a signal of attention one by one;

a determination step of determining a predetermined number of signals preceding the signal of attention designated by way of the designation step, and a predetermined number of signals following the signal of attention, to be predetermined neighbouring signals;

a weight average step of averaging by weight the signal of attention and the predetermined of neighbouring signals;

a flag setting step of calculating a difference in levels between the signal of attention and a neighbouring signal, judging whether or not the difference is larger than a predetermined threshold value, and raising flags for the neighbouring signal and a another neighbouring signal, the two neighbouring signals are arranged symmetrically with respect to the signal of attention, when the difference is judged to be larger than the predetermined threshold value; and

a control step of controlling and causing a process in the weighted average step to average by weight the signal of attention and the predetermined neighbouring signals, using the level of the signal of attention instead of the level of each of the neighbouring signals for which flags are raised.

6. (canceled)

EVIDENCE APPENDIX

Appellant does not submit additional evidence with this appeal brief and no additional evidence has been submitted during prosecution.

RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any related appeals or interferences with regard to the present application.